AGRIC.—931—(S.M.P. 10160—470)

NYASALAND PROTECTORATE

Report of the DEPARTMENT of AGRICULTURE

For the year 1947

PART I

PRICE 2s. 6d.

COMMONWEALTH MYCOLOGICAL INSTITUTE
4 APR 1949

1948:
PRINTED BY THE GOVERNMENT PRINTER, ZOMBA, NYASALAND

ANNUAL REPORT

DEPARTMENT OF AGRICULTURE

1947

STAFF LIST

Director	G. W. Nye, O.B.E., B.Sc. (Lond.), Dip. Agric. (Wye). (to 12/9/47)
Deputy Director	C. B. Garnett, M.A. (Cantab.). (Appointed Director 13/9/47)
Entomologist	C. Smee, O.B.E., M.C., D.I.C., A.R.C.S., F.R.E.S. (died 17/2/47)
	M. H. Breese, B.Sc. (Wales), D.I.C., F.R.E.S.
Chemist	Vacant
Assistant Chemist	,,
Chemist (Tung)	,,
Plant Pathologist	,,
Plant Breeder	,,
Chief Soil Conservation Officer ...	,,
Senior Agricultural Officers ...	E. Lawrence, N.D.A., C.D.A.
	R. W. Kettlewell, B.Sc. (Reading), Dip. Agric. (Cantab.), A.I.C.T.A.
	C. C. Webster, B.Sc. (Lond.), A.I.C.T.A.
	A. P. S. Forbes, B.Sc. (Hons.) (Edin.), Dip. Agric. (Cantab.), A.I.C.T.A.
Agricultural Officers	H. W. T. Webb, B.Sc. (Agric.) (McGill), A.I.C.T.A.
	C. J. Dawkins, B.A., B.Sc. (Oxon.), A.I.C.T.A.
	M. F. H. Selby, B.A., Dip. Agric. (Cantab.), A.I.C.T.A.
	A. B. Cormack
	W. V. Rose, B.A. (Cantab.), A.I.C.T.A.
	D. H. Laycock, B.A. (Agric.) (Leeds), A.I.C.T.A.
	G. Paton, B.Sc.
	A. B. Briars, B.A. (Agric.) (Leeds), A.I.C.T.A.
Senior Agricultural Assistants ...	F. F. Smithyman
	G. D. N. Bartlett, M.B.E.
	D. N. Smalley, M.B.E.
	R. E. Wilbraham
Agricultural Assistants	R. E. Jackson
	J. A. Miller
	J. C. Onions
	G. D. Muldoon
	J. J. Jeffrey
	G. A. Bridger
	L. N. Raynor
	D. J. Turner, B.Sc. (Reading)
	R. A. Leach, N.D.A., C.D.A.
	M. D. Ashwin, N.D.P.
	B. A. Timms, C.D.A.
Horticulturist	B. Gardner, C.D.A. (Hons.), R.M.S.
Temporary Agricultural Assistant	S. G. B. Williams
Tung Development Officer ...	C. E. Boardman
Plantation Assistant	D. E. Dunn, N.D.A.
Surveyor (2)	Vacant
Assistant Accountant	A. B. Findlay
Clerks	C. Rushby, R.S.A., A.I.L.
	G. E. Arthur
	J. de Silva
Clerk/Stenographer	Mrs. V. M. Henning

POLICY

The main items in Government policy as it affects the Department of Agriculture may be summarised as follows :—

(1) To conserve the natural resources of the land.

(2) To increase the production of foodstuffs, both as regards quantity and quality, without prejudicing (1).

(3) To increase the earning power of the individual from the land by the production of economic crops without prejudicing (1) and (2).

The fact that improvements in agricultural methods have not kept pace with the rapid increase in population has militated against the achievement of item (1) above, but nevertheless slow but steady progress is being made in soil conservation measures as a result of constant hard work by the Department. This progress is so far largely confined to simple mechanical means of preventing soil erosion. The larger problem of finding practical and economic means of maintaining soil fertility under tropical conditions can hardly be said to have been solved for peasant agriculture anywhere in the African colonies, but encouraging results are being obtained in Nyasaland from the application of the grass fallow system, although an immense amount of work remains to be done on this matter.

In spite of the difficulties of shortage of labour and fertilizers, the production of economic crops was at a satisfactory level and some crops, notably tobacco and tung, enjoyed record years. This achievement was somewhat dimmed by a deficiency in the staple food crop of the country—maize—and the situation, though undoubtedly aggravated by an unfavourable season, threatens to become chronic as increasing demands are made by a rising population on diminishing soil fertility. Apart from minor local shortages, which were readily met from more fortunate neighbouring areas, there was no lack of food in the villages, but employers of labour were not able to obtain all the maize for which they had applied. The Maize Control Board, which operated for the first time, and was charged with the duty of effecting an equitable distribution of all surplus maize, handled 7,631 tons of maize to provide an allocation to consumers of 40% of their stated requirements with an additional preference to certain industrial concerns, hospitals and leper settlements who are unable to produce their own supplies. It is not thought that European estate enterprises suffered any undue hardship as a result of the short allocation as the majority were able to augment their quota from tenant production, and scarcity of labour automatically reduced their requirements. In view of the threat which insufficiency of maize holds over the future development of the Protectorate, Government is examining a proposal that it should itself produce maize for its own requirements on mechanised farms and in this connection is also considering the production of hybrid maize seed. It is unlikely that in the future the supplies of surplus maize from Native Trust Land will be adequate to meet the full requirements of employers of labour and the Maize Control Board may find it necessary to give preference to industries which are not in a position to grow their own foodstuffs.

WEATHER CONDITIONS

2. In most parts of the Protectorate the total rainfall was normal or rather above average but the distribution within the season was unusual and somewhat unfavourable to crops. Heavy rain in November and early December provided conditions which were ideal for planting both food and economic crops but in the Southern Province there followed a dry spell which in some areas lasted as long as three weeks. Subsequent good falls of rain were again followed by unusually dry weather in January and these two droughts adversely affected most crops. In the Central and Northern Provinces dry spells did not occur except in Ncheu District and the nearby Lake Shore area. In the latter part of the season there were prolonged dull wet periods which markedly reduced the quality of the tobacco crop in all districts and in some areas had a bad effect on the final development and harvesting of maize. There was a frost of unprecedented severity in the plateau region of the Central Province in July, when minimum temperatures of 24 and 26 degrees F. were recorded at Lilongwe and Likuni. Great damage was done to tree plantations, especially *Cassia* spp., on many estates near Lilongwe ; and bananas, cassava and mangos were defoliated.

The total rainfalls for the six wet and six dry months are shown in the accompanying table :—

District	*Stations*	*Total Rainfall Nov. 1st, 1946 to April 30th, 1947*	*Total Rainfall May 1st, to October 31st, 1947*
Port Herald	Port Herald Expt. Station	27.43	3.53
	Makanga Expt. Station	19.59	6.40
	Tengani	16.93	4.73
	Chididi Mission	74.29	13.20
Cholo	Cholo Boma	41.60	8.32
	Tung Expt. Station	48.29	5.64
	Masambanjati	44.43	9.53
	Makwasa	—	3.60
	Kamponji	33.58	5.15
	Mandimwi	47.14	7.66
	Tekerani Mission	41.56	9.03
Mlanje	Mlanje Tea Expt. Station	81.44	9.14
	Lauderdale	93.99	4.34
Blantyre	Chileka	43.76	1.35
	Mwanza	47.59	2.94
	Lisungwe	38.96	2.58
	N.T.B. Limbe	53.86	4.12
	Blantyre Boma	40.21	1.55
Zomba	Zomba Expt. Station	81.12	1.47
	Makwapala	55.64	0.85

Liwonde	Mlomba N.T.B.	59.06	0.70
	Nyambi N.T.B.	30.89	0.56
Fort Johnston	Ft. Johnston Boma	32.27	1.54
	Jalasi Plot	53.30	1.23
Dedza	Dedza Boma	61.36	1.11
Lilongwe	Lilongwe N.T.B.	30.55	3.57
	Nathenje	44.48	—
	Mponela	36.00	—
	Nsaru	39.89	0.36
	Likuni	44.21	0.38
Fort Manning	Ft. Manning Boma	48.88	0.75
Dowa	Dowa Boma	42.19	0.13
	Mwera Hill	46.42	2.54
Kasungu	Kasungu Boma	45.32	—
Kota Kota	Kota Kota Boma	61.76	2.29
Chinteche	Vizara	67.00	16.13
Mzimba	Mzimba Boma	41.86	1.02
Karonga	Karonga Dept. of Agriculture	55.50	0.99
	Nchenachena	49.31	5.92

PRODUCTION AND EXPORT

4. It has already been mentioned that maize supplies were generally adequate on Native Trust Land but insufficient to meet in full the stated requirements of estates and industries. The local demand was considerable and fortunately the available surplus of cassava was appreciably greater than in 1946 whilst rice, at 2,032 tons, was only slightly less. In spite of local requirements nearly 1,000 tons of rice was exported to East Africa and nearly 800 tons of beans to the Rhodesias.

5. The production and acreage of the principal crops grown by Europeans are given in the following table :—

	1946		1947	
	Acreage	*Yield in lbs.*	*Acreage*	*Yield in lbs.*
Tea	20,399	13,986,695	20,788	12,927,829
Tung	11,361	838,022	12,668	1,620,456
Tobacco	6,432	2,967,809	5,617	2,549,424
Sisal	1,278	548,000	1,279	552,000
Cotton (lint)	210	110,336	358	79,151
Rubber	1,432	147,000	1,430	95,400
Soya Beans	1,231	975,028	1,758	883,040

6. The production of the two principal native grown crops, viz. cotton and tobacco, are given below :—

	Amount sold in lbs.	
	1946	1947
Cotton	11,634,000	12,029,953
Tobacco	13,064,000	23,915,380

7. The exported amounts and values of the various items of agricultural produce and raw materials were as follows :—

	1946	1946	1947	1947
	lb.	£	*lb.*	£
Beeswax	6,460	485	12,137	910
Capsicums and Chillies	34,776	871	52,737	1,320
Cotton (lint)	3,828,230	126,252	3,704,453	189,733
Cotton (seed)	1,590,330	1,917	2,046,058	2,752
Fibre (sisal)	210,266	1,891	255,061	4,414
Potatoes	107,588	324	122,346	354
Maize and Maize flour	—	—	432	5
Rubber	77,500	4,377	168,750	9,054
Soya beans	1,500,897	9,816	1,619,078	10,650
Strophanthus	3,114	311	8,352	836
Tea	13,839,209	749,624	12,939,828	849,172
Tobacco leaf :				
fire-cured	8,581,234	603,757	9,817,896	693,880
flue-cured	1,355,105	110,346	1,592,782	152,410
air-cured	1,511,082	112,610	1,713,785	121,836
Tobacco strips :				
fire-cured	3,470,556	239,645	3,586,153	289,121
flue-cured	624,767	59,656	600,062	71,820
air-cured	1,633,264	121,082	2,413,655	192,802
scrap	476,146	4,593	76,937	2,898
stems	71,979	600	197,772	1,648
Tung oil	236,866	25,303	157,305	16,504
Tung seed	3,891	183	2,313	179
Castor seed	231,258	1,127	26,515	111
Beans	4,376,872	34,005	2,407,730	17,972
Groundnuts	3,105,717	34,882	80,644	636
Rice	664,436	4,787	1,145,067	8,603
Vegetables	476,298	4,564	659,644	6,629

TOBACCO

8. (*a*) TRUST LAND CROP. The Central Province crop was by far the largest ever produced but one of the poorest in quality. A number of factors contributed to these superlatives. As a result of the high prices paid in 1946 the number of growers increased by approximately 50 per cent which led to production being almost doubled but also had a marked adverse effect on quality both on account of the fact that many of the new growers were inexperienced men, or women and children, and also because barn space was not proportionately increased to cope with the larger crop. The prolonged dull, wet weather in the latter part of February and throughout March also contributed to the poor quality as it rendered a good deal of the leaf thin and lifeless, especially that from the earlier plantings. The most important cause of low quality, however, was the very high price paid in the Native Tobacco Board markets for the lowest grade, X. As a price of 6d per lb. was offered for this grade at the beginning of the season it was not unexpected that the natural laziness of the majority of the growers, combined with the absence of goods in the stores on which to spend their money, led to careless handling and grading, poor curing and admixture of fair quality with short, damaged or green leaf. Consequently a large proportion of the crop was marketed in very poor condition. The average size of gardens remained approximately the same as in 1946, at 1.01 acres as compared with 1.04 acres, but in actual fact the experienced growers undoubtedly increased the size of their gardens while the new growers only planted small plots.

In the Southern Province the high prices of 1946 also stimulated interest in tobacco and the numbers of growers increased by approximately 61 per cent. The average size of gardens was also greater and the total area planted increased by 112 per cent, although production only increased by 86 per cent. In the Mlanje, Chiradzulu and Blantyre districts the growers had a particularly good season. Planting conditions were satisfactory, field work was done well, and, despite the dull, wet weather in March, the crop was remarkably free from disease. The quality of the leaf, however, was somewhat reduced by unfavourable weather during the curing season and by lack of barn space. In the Fort Johnston and Nyambi areas results were not so good as the number of growers was slightly reduced and the crop suffered more from adverse weather conditions. Quality was poor, there being much pole-burnt, perished and spoiled leaf.

(*b*) ESTATE PRODUCTION. Owing chiefly to shortage of labour, but also partly on account of uncertainty regarding prices, the acreage under flue-cured tobacco on European owned private estates decreased slightly from 5,585 acres in 1946 to 5,027 acres in 1947. Total production of this type of leaf increased slightly as a result of a more favourable season and the average price was satisfactory at a little above the 1946 level. Production of fire-cured tobacco on estates fell slightly but there was an appreciable increase in the quantities of both air-cured and Burley grown by tenants.

TABLE 1. TOBACCO PRODUCTION

		1946	1947
		lbs.	*lbs.*
Flue-cured	Private estates, European grown	2,276,063	2,314,739
	" " Tenant grown	72,986	109,412
	Native Trust Land	nil	nil
Fire-cured	Private estates, European grown	471,883	61,146
	" " Tenant grown	3,687,397	3,484,476
	Native Trust Land	7,878,992	15,894,187
Air-cured	Private estates, European grown	169,197	115,680
	" " Tenant grown	1,101,336	1,910,553
	Native Trust Land	638,441	1,359,000
Burley	Private estates, European grown	39,316	55,057
	" " Tenant grown	807,534	1,102,695
	Native Trust Land	nil	nil
Turkish	Private estates, European grown	11,350	2,800
		17,154,495	26,409,745

TABLE 2. TRUST LAND CROP

	No. of growers		*Average yield of cured leaf per grower in lbs.*		*Average return per grower*	
	1946	1947	1946	1947	1946	1947
Central Province	49,187	75,727	150	193	140s	135s
Southern Province	8,244	13,284	132	204	82s	153s

TABLE 3. SALES ON AUCTION FLOOR

	Quantity sold in lbs.		*Average price per lb paid on floor*	
	1946	1947	1946	1947
Flue-cured	2,610,891	2,738,977	22.04d	22.80d
Fire-cured	8,230,576	16,774,961	14.69d	9.94d
Air-cured	856,873	1,361,990	15.29d	9.74d

COTTON

9. In the Lower River District of the Southern Province, which is the main cotton growing area of the Protectorate, planting conditions for this crop were difficult, and although a certain number of growers managed to catch the January rains the majority did not complete their planting until March. Owing to the drought in February, the favourable weather in March resulted in excellent stands and, although growth was retarded by lack of rain in April, May rains were adequate and the damage by boll-worm was comparatively light in most areas. Except in the area of N.A. Ngabu, where an appreciable area was planted in January, the crop was late owing to delayed opening of the bolls as a result of low temperatures in July, but an improvement followed upon warmer weather in August and the intake at the markets gradually accelerated in September. In spite of a slight decrease in the number of gardens in this district the crop was rather more than 21 per cent greater than in 1946, a result mainly due to the comparatively light boll-worm attack. In the small cotton growing area of Blantyre District there was also a slight reduction in the number of growers but the good rains in November enabled people to plant early and as weather was fairly satisfactory throughout the growing season the crop was approximately 16 per cent greater than in the previous year. Picking began in May under ideal conditions and as there was little incidence of stainer the cotton was clean. In the Fort Johnston and Zomba Districts the number of growers was only 50 per cent of that of 1946 and the crop was only 28½ per cent of the 1946 total. The main reason for the decrease in the number of growers was the poor crop and low price of 1946 and the fact that cotton was competing with the attractions of the much higher-priced tobacco grown in the same area. The size of the crop was further reduced by late planting, heavy rains in March and early April which retarded growth on the low-lying land where the crop is mainly planted, and, in Kalembo's area, by boll-worm and stainer damage. Over the whole of the Southern Province the cotton crop was 14½ per cent greater than in the previous year and with a guaranteed price of 3d. per lb. for seed cotton the monetary return to the growers was very satisfactory.

After declining steadily for some years cotton production in the Central Province was increased in 1946 as a result of considerable propaganda and a guaranteed minimum price of $^{19}/_{16}$d per lb. The monetary return, however, was insufficient to maintain interest and, in spite of timely advertisement of the fact that the price would be 3d per lb. in 1947, the number of growers decreased in almost all districts and the total production was just under half that of 1946. The weather was to some extent responsible for this reduction, particularly in Kota Kota district where there were more growers than in 1946, but dry spells were unfavourable to the crop. The Karonga (Northern Province) crop was very much reduced owing to the unprecedented rains in November which caught the crop unharvested in the field.

Details of Native Trust Land and Private Estate seed cotton production, in lbs., were as follows :—

Southern Province (N.T.L.)		*Central Province (N.T.L.)*		*Northern Province (N.T.L.)*	
Port Herald	5,077,000	Ncheu ...	8,358		
Chikwawa	5,205,000	Dedza	199,569		
Cholo	7,400	Dowa	128,418	Karonga ...	437,689
Blantyre and Neno ...	538,000	Kota Kota ...	320,519		
Fort Johnston ...	108,000		656,864		
	10,935,400				

Total Native Trust Land production	12,029,953
Tenant production	1,964,317
European Estate production	110,336

TEA

10. The production of tea declined by nearly a million pounds from 13,839,209 lbs. in 1946 to 12,927,829 lbs. in 1947. This decrease was due to three main causes : (1) Climatic conditions were unfavourable. During the rainy season a dry period in January checked flushing and later on the heavy persistent rain and low temperatures experienced during March also retarded growth and reduced yields. The dry season was rather more severe than usual. (2) Loss of crop resulted from shortage of labour during the rainy season and depreciation in the quantity and quality of the work done was noticeable in spite of higher wages and improvements in feeding and housing. On some estates gardens had to be temporarily abandoned. (3) Supplies of fertilizer, especially sulphate of ammonia, continued to be below requirements for full production and late delivery aggravated the position.

TUNG

11. The returns rendered to the Department of Agriculture by growers showed that the total area under tung in the Protectorate at 30th September, 1947, was 12,668 acres, of which 11,314 acres is *Aleurites montana* and 1,354 acres *A. fordii*. Of this approximately 6,774 acres is three years old or less and is therefore not yet in bearing. The 1947 crop was harvested from 5,894 acres in bearing or partial bearing and 1,600,456 lbs. of seed was delivered to the factory. Total production of oil was 499,250 lbs., or about 93 per cent greater than the 1946 figure of 257,885 lbs. The Tung Board, established under the Tung Ordinance, 1946, was responsible for the marketing of the oil and sold it through agents appointed in London. In spite of the fact that there has again been an appreciable increase in total production of this crop, the yields per acre on most estates are still low. This is chiefly due to lack of cultivation and manuring consequent upon the shortage of labour.

MINOR CROPS

Wheat.

12. In the Kirk Range area of Ncheu and Neno it was a bad season for wheat owing to the fact that the winter rainfall, on which the growth of the crop is dependent, was much below average. The crop in this area was only about two-thirds of that of 1946. Production in the Cholo and Dedza districts remained very small. Increases were reported from Mzimba and also from the Chinyama area of Mlanje where about 40 acres was planted and 11 tons sold in the local market. Total production of wheat was 333 tons as compared with 494 tons in 1946.

Rice.

13. In the Karonga and Kota Kota districts rainfall and flooding were propitious for this crop in all areas except the extreme north of Karonga, where flooding was excessive. A new rice mill at Kaporo in Karonga district was completed during the year. In all the main rice producing areas of the Southern Province the crop was poor compared with 1946, the main reason being excessive flooding. On the Lake Shilwa littoral in Zomba District many gardens became inundated as a result of the heavy cyclonic rainstorm which occurred at Zomba in December, 1946, and the crop from this area dropped from 299 tons in December, 1946, to 89 tons this year. In the Lower River District the crop was also much reduced by a combination of excessive flooding followed by drought. The total amount marketed in the Protectorate was 2,032 tons as compared with 2,644 tons in 1946. These figures do not even approximately indicate total production as a great deal of the rice is eaten locally, especially in Kota Kota District.

European Potatoes.

14. The quantity of potatoes sold in Ncheu and Dedza District again declined being only 144 tons as against 230 in 1946, 474 in 1945, and as much as 646 in 1944. This, however, merely indicates that more and more of the potatoes are being sold in Portuguese territory instead of in Nyasaland. A limited cultivation of potatoes continued in Cholo, Chiradzulu, Domasi and Namweras.

Maize.

15. The amount of surplus maize purchased in the native produce markets fell from 13,178 short tons in 1946 to 10,334 tons in 1947, the decrease being most marked in the Southern Province where only 2,929 tons was bought as against 6,211 tons in the previous year. Adverse weather conditions were mainly responsible for this decrease, particularly in the south where dry spells during the early part of the growing season followed by prolonged wet weather later had a bad effect, but the markedly increased interest in the high prices tobacco crop also had its effect on the quantity of maize produced and sold.

Groundnuts.

16. As in 1946, a good deal of propaganda was done with the object of increasing the production of this crop and the guaranteed price was raised by ½d to 2d per lb. but although the acreage was probably increased the surplus sold was less than in the previous year. There were several reasons for this. Firstly, planting conditions were difficult and subsequently weather was unfavourable, the late rains in particular making harvesting very difficult in some districts. Secondly, the incidence of rosette disease was higher than usual, especially in the Fort Johnston-Zomba area and in Chikwawa, where growers continued to plant late and at too wide a spacing. Thirdly, in two localities there was a marked response to the increased production drive and where excellent crops were harvested, as in Mwanza and Fort Manning, a large proportion of the crop was sold outside the Protectorate. Finally, there is no doubt that increasing quantities of groundnuts are being used as food and a considerable internal trade takes place at relatively high prices. The total surplus purchased amounted to 1,871 tons as compared with 2,249 in 1946.

Pulses.

17. Here again there was a decrease in the amount sold in the markets, from 1,945 tons in 1946 to 1,530 tons in 1947, which was only 40 per cent of the 3,773 tons obtained in 1945. In the Southern Province the yields of early planted pulses (Bambara groundnuts, Cowpeas, and Canadian wonder beans) were drastically reduced by adverse weather conditions at the beginning of the winter season but late sown pulses did well. Chick peas and grams, which are drought resistant, yielded particularly well. The March rains spoiled the crop in the Ncheu and Dedza districts of the Central Province so that production was less than a third of that of 1946, but the Dowa Lakeshore crop was unusually heavy, due largely to the planting of a large area where the Chirwa River had destroyed the maize gardens by flooding.

Sesame.

18. Attempts to increase production by the issue of good white seed in the Chikwawa and Blantyre Districts met with only moderate success, due mainly to bad weather, and the crop sold only increased by 5 tons to 20 tons. The interest shown in the Bwanje Valley during 1946 seems to have petered out. The total amount purchased in the Protectorate produce markets was only 28 tons as against 49 tons in 1946.

Pyrethrum.

19. The failure of this small native industry which was started in 1939 on the high Nyika was mentioned in last year's report. The cultivators found it too arduous to climb nearly 4,000 feet to their gardens and the European holder of the exclusive purchasing licence had to withdraw his support when it became clear that returns would not even cover recurrent expenditure.

Coffee.

20. Production of coffee in the Nchenachena and Misuku areas remained very small. The bushes are very much neglected by the growers and it is unlikely that there will ever be much expansion since the crop calls for a degree of constant and regular attention which the people are not prepared to give.

PESTS AND DISEASES

Insect Pests.

21. Cotton grown in the main producing area of the Lower River District suffered less damage from red bollworm (*Diparopsis castanea*) and stainers (*Dysdercus spp.*) than in 1946 and this resulted in an earlier and cleaner crop. In the Central and Northern Provinces this crop was remarkably free from pests.

The beetle *Ootheca mutabilis* caused serious damage by defoliating cowpeas and Canadian Wonder Beans in Blantyre District.

Thrips (*Heliothrips haemorrhodalis*) caused severe defoliation of tea bushes over an area of about five acres on one estate. The insects were found to be widespread, but in small numbers and causing no appreciable damage, on unpruned and semi-pruned tea throughout the Cholo and Mlanje Districts, and it is probable that the severe outbreak on the estate in question was due to a drought period combined with conditions of altitude and shelter particularly favourable to the insects. After clean pruning the infected area very few thrips were noticed on the new growth and it is likely that pruning is the most satisfactory control measure as spraying would be very costly.

Diseases.

Mosaic and brown streak of cassava were reported from all areas. Groundnut rosette did not generally cause appreciable yield reduction as in most areas planting was good and early, but where the crop was planted late and widely spaced the disease did much damage. Loose and covered smuts of sorghum were common in all areas and are accentuated by the habit of ratooning this crop.

THE WORK OF THE DEPARTMENT

Staff.

22. Some improvement was effected in the staff position by the recruitment of several Agricultural Assistants but it was still impossible to post more than a skeleton staff to the Northern Province. There was no improvement in the recruitment of qualified staff. No vacancies for Agricultural Officers or Soil Conservation Officers were filled during the year, the posts of Chemist and Assistant Chemist remained vacant and the Department was without an Entomologist for nine months. The new posts of Plant Pathologist and Plant Breeder could not be filled.

Makwapala Training School.

23. All of the 22 second year students in residence during the year passed their final examination successfully and none of the 23 first year students failed the interim test at the end of their first year. It is very noticeable that the few students who go to the training school after having had previous experience in the Department are considerably better than those who go straight from School or after working as teachers in primary schools. All students received practical training in extension work amongst villagers and carried out a simple survey of a village area, counting the people in the village, estimating food stores and crops in the field, etc. At the close of the session the training school was moved from Makwapala, where it has existed on very unsatisfactory land since 1940, to Mpemba, near Blantyre. At the request of past students now employed in the Department it will continue to be known as Makwapala Agricultural Training School.

Marketing of Crops.

24. For this first time markets were gazetted in the Lilongwe District under the Marketing of Native Produce Ordinance, and with the inclusion of this district markets are now operated under the provisions of the Ordinance in all parts of the Protectorate except Chinteche District. The following were scheduled as controlled crops in all three Provinces: maize, beans, peas, wheat, groundnuts, rice and paddy, sorghum, European potatoes, cassava, millets and sesame. The volume of produce passing through the markets was somewhat less than in the previous year. On the whole the marketing was done smoothly but hold-ups frequently occurred owing to buyers failing to keep their agents supplied with bags and cash. The main obstacle to efficient marketing in the Central Province is the state of the district roads and bridges. In one district the roads were not in commission until towards the end of the marketing season and buyers were compelled to stop buying in mid-November because of the danger of being unable to remove their produce once the rains started.

The Maize Control Board operated in the Protectorate for the first time. Its operations were confined to the Southern and Central Provinces where it purchased all surplus maize and then allocated and re-sold it to consumers. A separate annual report on the work of this Board is published.

Native Agricultural Shows.

25. In the Southern Province, where agricultural shows are now well established and popular, 19 shows were held in the districts in addition to the Central African Agricultural Show organised by the Nyasaland Agricultural Society in Limbe. All shows were well attended and the numbers of exhibits showed a 34% increase over 1946. In Mlanje and Chiradzulu a great deal of the preparation for, and organisation of, the shows were undertaken by committees under the Chairmanship of Native Authorities who proved unusually capable of doing the work. In other districts the organisation is still mainly

done by European agricultural and administrative officers but it is gradually being delegated to African committees. Seven shows were held in the Central Province, six of which were the first ever held, or the first for eight or more years, in their particular districts. All were organised by the Native Authorities concerned with the assistance of committees on which Europeans served, except those of Gomani and Kachere, where the committees were entirely African. The standard of organisation was good and the standard of exhibits, although not good, was satisfactory for first efforts.

Demonstration.

26. In the Southern Province this work continued along the lines of previous years but with the emphasis on family *small holdings* and *small demonstration gardens*, the large observational gardens run by the Department with paid labour being reduced to five. The small holding aims at typifying how a family should cultivate its land and demonstrates all the usual desirable practices—rotation of crops including grass fallows, ridging, proper spacing etc. There are sixteen of these in the Southern Province and most of them have small orchards of fruit trees and reserve food gardens of cassava. The aim is to have these small holdings run entirely by a farmer and his family without any financial assistance or provision of paid labour from outside, but at present the majority are still worked by individuals who receive payment from the Native Treasuries. The small demonstration plots are from $^1/_{100}$th to $^1/_{25}$th of an acre in size, are situated within the gardens of co-operative Africans and demonstrate simple items such as box-ridging, application of manure etc. This is the main line in demonstration in the Southern Province (where 445 such plots were established this season) as it is clear that the cultivator is more likely to accept a practice which he sees is beneficial as a result of his own efforts in his own garden than if it is done elsewhere under European supervision and by paid labour. Wherever possible, notices are placed on the plots to inform passers-by what is being done.

In the Central Province there are practically no demonstrations performed with Government money or under direct European supervision. Efforts are concentrated on the demonstrative power of the private garden whose owner has adopted, either spontaneously or after suggestion, any required improvement. The Native Agricultural Instructor plays an important part in this sphere by maintaining his own garden by the best methods, seeing that it produces more and better crops than its neighbours, and by inspiring the interest of the local population. As in the Southern Province, progress is very slow, but it is possible to quote a few examples of improvements which occurred in 1947 as a result of this type of extension work. In Ncheu only 44 cases were recorded in 1946 of manure being applied to main-crop gardens, but the number in 1947 was 227 ; in Lilongwe, from the nucleus of three co-operators in the Nsaru area in 1946, there are now 221 in this same area, all of whom have demonstrated to the Agricultural Assistant's satisfaction one or more improved agricultural methods ; from Mponela, Dowa District, the number of improved-type pit tobacco barns reported has increased from zero in 1945 to 4,060 in 1946 and 12,927 in 1947.

Soil Conservation.

27. The soil conservation policy of the Department has continued to be two-fold : extension work by means of propaganda, instruction and initial assistance to obtain the general adoption of the simpler measures such as ridge cultivation, and intensive work in special areas where the reclamation and protection of the degraded land requires the immediate organisation of land usage and the introduction of conservation measures which can only be achieved by concentrated effort. In general it may be said that very appreciable progress has been made by both methods towards the prevention of soil erosion by mechanical means but so far little has been achieved in the direction of the maintenance of soil fertility by rotations involving grass fallows or green manure crop, and manuring.

Extension work is largely directed towards the introduction of contour bunds, contour planting ridges and boxing of ridges, in that order. The progress made varies considerably from district to district, being very notable in some of the more enlightened areas and quite negligible in the backward ones, but there is clear evidence of very appreciable achievement during the year. In the Southern Province the Mlanje District is the most forward ; here the practice of planting on contour ridges is virtually universal and good progress has been made with box-ridging. The percentage of cultivators adopting the latter practice varies greatly in different localities but it is estimated that their gardens must total over 20,000 acres. The adjoining district of Chiradzulu has not got so far, ridging is pretty general but boxing is only just beginning. The Fort Johnston District is one which is at the stage where the introduction of contour ridges is now making progress and the percentage of ridged gardens varies with the locality from under 30 to over 90 percent. Finally, on the plains of the Lower River District all attempts to introduce ridging have so far met with failure. The extreme contrasts experienced may be illustrated by a comparison of the Madzibango area and nearby Chikwawa escarpment on the one hand, and the Lisungwe district of N.A. Symon on the other. In the former, despite the strong initial opposition of the people, contour bunds and ridges have been fully adopted and maintained and progress may be judged from a remark made by a village headman who was formerly one of the most stubborn and bitter opponents of any soil conservation measures : " We thought of you, and treated you, as an enemy but you are now a friend." In the latter area, in spite of efforts made over the past four years, there is no progress or interest to record. Over the whole of the Southern Province the total area marked out for bunding by African staff of the Department during the year was just over 32,000 acres.

Results in the Central and Northern Provinces have similarly varied with the locality. Greatest progress has been made in the tobacco growing areas of Dowa and Lilongwe. Thus, in the Mponela area of Dowa practically all tobacco gardens are box-ridged and over 4,000 have had manure applied to them. Box ridging spread through almost all tobacco gardens in Lilongwe in 1946 and 1947 (95%, representing an increase of 900% over 1946, of the tobacco gardens around Nsaru were fully box-ridged in 1947) and about half the maize gardens are also boxed. At the other extreme in the Central Province is the Fort Manning District, where efforts have still to be made towards the elimination of mound cultivation. Only two European Officers were stationed in the Northern Province and, apart from the Karonga

District, little headway has been made. In Mzimba conservation propaganda has been regularly diffused by demonstrations and talks but the traditional destructive method of land use still predominates. The West Nyasa District was entirely without European agricultural staff and the devastation and loss of natural resources continues at an alarming rate.

The special areas, in which intensive work is done, are now too numerous to be detailed individually. The comments below are therefore confined to the principal areas or groups of areas of similar character.

(*a*) Mlanje—Chiradzulu Special Areas. These are all dominated by somewhat bare and unprotected hills and the measures employed are designed to prevent the unchecked flow of water from the hills causing extensive erosion on the cultivable land below. Conservation measures comprise storm drains, check dams in gulleys, soil-holding vegetation for the demarcation and protection of stream banks and gulleys, and tree planting on the hillsides above storm drains. The total length of storm drains constructed is over 52 miles, 2,210 stone check dams have been built and about 20,000 trees established besides some miles of protective vegetation along stream banks, gulleys and storm water outflows. All the work has been done with paid labour ; active co-operation on the part of the people was nil and they have yet to show any signs of accepting the responsibility for the maintenance of storm drains and other works.

(*b*) Livulezi, Ncheu District. Considerable progress has been made towards the two main objectives of protecting the main escarpment and reducing the excessive cattle population. The escarpment Forest Reserve has been demarcated and the people have agreed to its closure. De-stocking rules under the Natural Resources Ordinance were passed in October and mainly as a result of this, 900 cattle were voluntarily exported to Blantyre. Further removals will take place after the first bundings in December. In addition to general agricultural improvements there are now 24 grazing areas in various stages of development.

(*c*) Dzenza, Dedza District. Not a great deal of new ground has been covered as the majority of the staff had to remain in the old area to see that planting ridges were aligned with the marker ridges made in 1946, but 2,000 new gardens have been marked and bunded during the year bringing the total to over 11,000. Nine new grazing areas were added during the year, making 37 in all. Good control of cattle has been obtained by the use of 8 cattle guards and many of the people now appreciate the benefits of rotational grading and proper herding. Check dams at frequent intervals planted with dhub grass (*Cynodon dactylon*) have been found effective in gulley reclamation.

(*d*) Dowa Escarpment, Dowa District. The posting of an Agricultural Officer to the district late in 1946 enabled work to be intensified and considerable progress has been made. Garden preparation was carried out very early, facilitating the aligning of gardens for marker ridges and over 2,000 gardens had been so marked by the end of the year. The main obstacle in this area is the indifference of the Chief and the headman.

(*e*) Misuku Land Usage Scheme. In the Misuku area proper maintenance work is being continued and the high standard of soil conservation and general land usage achieved in the past is being kept up, although not without continued pressure. Four new soil conservation schemes have been launched in the area. Progress in three of them has been very slow but in the fourth (Nyondo) the great majority of the gardens are boxed, bunding in the steeper areas has been started with good co-operation and the worst slopes have been closed to cultivation.

Reafforestation in Tobacco Growing Areas.

28. In 1946 work was begun with a grant from the Native Development and Welfare Fund with the object of carrying out reafforestation in the tobacco growing areas of the Southern Province which have already been seriously depleted of timber. The principal effort was made in Mlanje and Chiradzulu, which are the chief tobacco areas, but work has also been undertaken in Zomba, Fort Johnston and Blantyre. Seedling trees are raised in nurseries and issued (*a*) to individuals for planting around their huts, on road-sides or on suitable areas of resting land, and (*b*) for planting in village forest areas. In early 1947 over 425,000 seedlings were issued from 61 nurseries, 213,646 for village forest areas and 211,883 to individuals. Towards the end of the year additional nurseries were established in all districts and by December there were 122 nurseries containing approximately 450,000 seedlings.

Experimental Stations and Seed Farms.

29. Full scale experimental work was carried out only at Mlanje (tea), Chiradzulu, Cholo (tung), Port Herald and Makanga (cotton, food crop and fertility maintenance), and this work is fully described in Part II of this Report. Preparations for the establishment of a new main Agricultural Research Station near Lilongwe have been put in hand but it will naturally be some considerable time before the necessary buildings are completed and the staff, comprising a Senior Agricultural Officer, Farm Manager, Plant Pathologist, Plant Breeder and Chemist, is recruited. Production of improved seed and plants for sale or issue to natives was undertaken at Mlanje (citrus and vegetable seeds), Namalenga, Makanga, Port Herald, Masambanjati, Chigweji (food crops), Zomba and Likuni (food crops and tobacco). At the Mwera Hill station the fruit tree trials were extended by planting out several varieties of plums, apples, pears and peaches on various stocks and new nurseries of deciduous fruit trees and citrus stocks have been established. Relatively few trees were issued to natives but as a result of the new nurseries the output should be considerably increased from 1948. Small scale experiments with food crops or tobacco were undertaken at many of the above stations and also at Sharpe Vale, Nkande and Tiwi and are all dealt with in Part II of this Report. At Nchenachena observation plots of Arabica coffee have been maintained in good order and further nurseries planted for the distribution of seedlings to local native growers. A small trial of Robusta coffee under wild fig and banana shade in alternate planting lines is being undertaken.

Kasungu flue cured tobacco project.

30. A small station was established in 1946 at Lisasadzi, 12 miles south of Kasungu, to carry out experiments with a view to testing the possibilities of large scale production of high quality flue-cured tobacco in an extensive tract of country situated in Kasungu and north western Dowa Districts. A preliminary examination of the light sandy soils of the area, by an agricultural chemist experienced in tobacco culture, had shown that they are similar to soils on which bright tobacco is successfully grown in Southern Rhodesia and the first experimental crop was grown in the 1946-47 season. Twenty-five acres of the varieties Duquesne, Jamaica Wrapper and Cash were grown and in addition there were 10 acres under food crops. The four twelve-foot barns which had been completed were found to be inadequate for the curing of the whole crop which was estimated at 700 lbs. of cured leaf per acre. Nevertheless, a total of 11,531 lbs. of leaf was despatched to Limbe and sold over the auction floor where it obtained good prices and was very favourably commented upon by the buyers. Owing to a misunderstanding the buyers mixed the Kasungu leaf with other tobacco and consequently reports were not obtained from manufacturers as had been intended, but arrangements have been obtained for full reports on the 1947-1948 crop. Some deterioration of the cured leaf occurred as a result of the very dry air conditions, characteristic of the Kasungu locality in April and May, and the absence of any steam apparatus, but this will be rectified next season. Two more barns were built during the year and a further ten acres of land cleared with a view to putting 35 acres under tobacco in the 1947-48 season.

Should the cultivation of flue-cured tobacco be developed in this area, the provision of food-stuffs for labour will be an important factor and therefore subsidiary experiments are being conducted with food crops on a further ten acres of land. Maize was a complete failure in spite of fertilizer this season but it must be remembered that it was being grown on newly cleared land and it is quite possible that better results will be obtained from maize grown after tobacco with the benefit of the residual effects of fertilizer applied to the latter crop. Sorghum, groundnuts and beans, grown with the assistance of fertilizer, were more successful.

The Vipya Tung Development Scheme.

31. A programme of investigation and development, which aims at testing the possibilities of tung growing on a large scale in an extensive area lying to the east of the Vipya Mountains, was begun in December, 1945. The objective of this scheme is the establishment of a number of fair sized experimental plantations, totalling approximately 500 acres, situated so as to test the suitability of various parts of the area and to serve as nuclei for subsequent development. By the end of 1946 the progress made was chiefly confined to preparatory work on roads, buildings and nurseries of seedling stocks and budwood, but five small plots, totalling six acres, had been planted in January and February, 1946, in the Kaningina section. In January, 1947, a further 12 acres was planted at Kaningina and six one-acre experimental plots were established at various other sites. The latter are designed to compare four different clones and manurial treatments involving nitrogen, phosphate, potash and cattle manure. During 1947 a further area of approximately 380 acres was cleared and in January, 1948, 318 acres of this was planted in six plantations varying in size from 26 to 92 acres. Inclusive of the 18 acres previously planted at Kaningina and of the small experimental plots, the total area now planted is just over 340 acres. Sixty acres of land already cleared remains to be planted next season and a further 100 acres to be cleared at Mazamba will complete the programme of 500 acres. Nurseries were considerably extended during the year by the raising of a further 10,000 plants as a reserve for the 1947-48 season and the establishment of a large new nursery, containing 65,000 seedlings, to provide planting material for the first acreage to be planted under the larger development scheme in the 1950-51 season.

Thirty-two miles of earth roads had been constructed by the end of the year and these roads were maintained in a condition which rendered them passable for lorries in all weathers. Permanent buildings constructed during the year comprised two cottages and a guest house, and temporary buildings totalled 67 labourer's huts, six bachelor quarters housing 50 men each, cattle kraals, garages, grain stores and workshops.

So far, very satisfactory results have been obtained from the plantations, in which growth is well up to that obtained in the main established tung growing areas of the Protectorate. In their first season the small experimental plots have shown a marked response to nitrogen and there may possibly be some benefit from phosphate. These results, combined with the fact that soil analyses have shown low nitrogen and phosphate contents, indicate the probability that application of these fertilizers may prove economic or necessary in some parts of the area and with this in mind a complex factorial experiment was planted in January, 1948, in order to compare three levels of manuring with nitrogen, three levels of phosphate and one of potash.

Widespread symptoms of a nutritional disorder appeared in the nurseries and in isolated plants in the field, in March, 1947, resulting in serious stunting and dieback of many of the plants. A series of trials with plant injections, sprays and fertilizers revealed that the condition could readily be cured by application of zinc sulphate either as a spray or to the soil. Observations are being continued to see if recurrence of the condition will necessitate further treatment but so far once-treated plants have remained healthy.

Summary of Legislative Changes.

32. *The Tea (Amendment) Ordinance*, 1947, repealed section 5 of the principal Ordinance. The Tea Ordinance being due to expire definitely and finally on 31st March, 1948, it was felt unnecessary to continue the restrictions which limited the replanting of tea to the replacement of bushes which have been uprooted and to the supplying of vacancies where such supplying had been approved by the Director of Agriculture.

The Tobacco Amendment Ordinance, 1947, amended the principal Ordinance in the following respects : (1) Makes it an offence to offer any inducement or consideration other than cash to a native in respect

of the purchase of tobacco, and prohibits the purchase of tobacco from natives at night. (2) Enables the Director of Agriculture to fix the latest dates by which various types of tobacco plants must be uprooted. (3) Ensures that the Governor-in-Council shall have time to consider any representations which may be made regarding rules made by the Tobacco Control Commission before deciding whether to allow, disapprove or modify them. (4) Gives persons aggrieved by decisions of the Commission under Part VI of the Ordinance a right to appeal to the Governor-in-Council.

The Maize Control (Amendment) Ordinance, 1947, makes any refusal of the Maize Control Board to make available a fair amount of maize to any applicant subject to the prior consent of the Governor. It also increases the unofficial membership of the Board from 5 to 6.

The Destocking Rules, 1947, made under Section 22 of the Natural Resources Ordinance, 1946, made provisions for compulsory de-stocking in such areas as the Governor may specify where it became necessary to reduce the livestock population in order to safeguard natural resources.

The Controlled Produce Order, 1947 (Government Notice No. 90) and General Notice No. 202 allowed the export of controlled produce only under permit and fixed f.o.b. and f.o.r. prices for local produce intended for export. Controlled produce comprised rice, groundnuts, groundnut cake, wheat, wheat flour, sesame, beans, pulses and fish.

ACKNOWLEDGEMENTS.

The staff situation at last showed some improvement and with the expansion of the Department it has become possible to extend the scope of our endeavours. This has been especially welcome to a body of keen and enthusiastic officers who have chafed at the delay consequent on staff shortages in putting into operation prepared programmes of development and betterment. Whatever disappointments and set-backs have been experienced, the officers of the Department may rest assured that they themselves, by their hard work and application, have done everything that was required of them and that their enthusiasm is a perpetual inspiration to Headquarters. I also acknowledge most gratefully the friendly co-operation invariably extended to us by the Provincial Administration and the other Departments with whom we are in close contact.

ZOMBA

C. B. GARNETT
Director of Agriculture

District	Tea		Tung		Coffee		Sisal		Rubber		Cotton	
	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.
Lower River	65	—	—	—	—	—	—	—	—	—	—	—
Cholo	10,520	5,908,195	9,094	1,229,270	—	—	1,277	552,000	—	—	103	5,294
Mlanje	10,203	7,345,600	236	17,000	—	—	—	—	—	—	—	—
Blantyre	—	—	888	26,404	10	1,120	1	—	—	—	—	—
Zomba	—	—	2,736	114,713	10	112	—	—	—	—	—	—
Fort Johnston ...	—	—	604	—	—	—	—	—	—	—	—	—
Ncheu	—	—	—	—	—	—	—	—	—	—	—	—
Dedza	—	—	—	—	—	—	—	—	—	—	—	—
Lilongwe	—	—	—	—	—	—	1	—	—	—	60	24,800
Dowa	—	—	—	—	—	—	—	—	—	—	194	47,857
Kota Kota	—	—	—	—	¼	15	—	—	—	—	1	1,200
Mzimba	—	—	—	—	½	90	—	—	1,430	95,400	—	—
Chinteche	—	—	—	—	—	—	—	—	—	—	—	—
Karonga	—	—	—	—	—	—	—	—	—	—	—	—
Total	20,788	13,253,795	13,558	1,387,387	21	1,337	1,279	552,000	1,430	95,400	358	79,151
1946	20,399	13,986,695	13,361	838,022	80	2,574	1,278	548,000	1,432	147,000	210	110,336

District	Maize		Wheat		Rice		Chillies and Capsicums		Soya Beans	
	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.
Lower River	8	8,415	—	—	—	—	—	—	—	—
Cholo	413	162,671	1	100	—	—	5	1,800	1,614	839,475
Mlanje	494	302,683	11	6,801	—	—			39	8,039
Blantyre	597	368,048					33	385	51	16,825
Zomba	292	264,609	—	—	¾	329	45	4,992	52	18,701
Fort Johnston ...	230	89,200	—	—	—	—	10	6,720	—	—
Ncheu	62	8,000	5	1,000	—	—	—	—	—	—
Dedza	128	160,300	2	500	—	—	1½	300	—	—
Lilongwe	1,170	644,431	3	400	—	—	—	—	—	—
Dowa	122	98,821	—	—	—	—	—	—	—	—
Kota Kota	6	3,600	1	600	¼	300	—	—	—	—
Mzimba	34	4,500	—	—	—	—	—	—	—	—
Chinteche	—	—	—	—	—	—	—	—	—	—
Karonga	—	—	—	—	—	—	—	—	—	—
Totals	3,556	2,105,278	23	9,401	1	629	94	14,197	1,756	883,040
1946	3,243	2,198,488	31	13,448	60	88,177	205	72,150	1,231	975,028

TOBACCO—ESTATE PRODUCTION, 1947

District	Total		Fire-cured		Flue-cured		Air-cured		Burley		Turkish	
	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.
Lower River	25	3,330	—	—	25	3,330	—	—	—	—	—	—
Cholo	1,215	465,980	—	—	1,215	465,980	—	—	—	—	—	—
Mlanje	181	62,401	27	12,500	154	49,901	—	—	—	—	—	—
Blantyre	1,324	689,011	—	—	1,324	689,011	—	—	—	—	—	—
Zomba	619	233,867	10	2,359	395	163,208	210	68,300	—	—	—	—
Fort Johnston	1,143	647,258	—	—	1,143	647,258	—	—	—	—	—	—
Ncheu	415	115,734	—	—	335	83,734	80	32,000	—	—	—	—
Dedza	325	153,884	45	42,087	279	111,447	—	—	—	—	—	—
Lilongwe	295½	153,889	10	4,200	152	99,970	12	6,380	113	40,889	1	350
Dowa	75	24,068	—	—	5	900	15	9,000	55	14,168	8½	2,450
Kota Kota	—	—	—	—	—	—	—	—	—	—	—	—
Mzimba	—	—	—	—	—	—	—	—	—	—	—	—
Chinteche	—	—	—	—	—	—	—	—	—	—	—	—
Karonga	—	—	—	—	—	—	—	—	—	—	—	—
Total	5,617	2,549,422	92	61,146	5,027	2,314,739	317	115,680	168	55,057	9½	2,800
1946	6,432	2,967,809	345	471,883	5,585	2,276,063	332	169,197	143	39,316	27½	11,550

TOBACCO—TENANT PRODUCTION, 1947

District	Total		Fire-Cured		Flue-Cured		Air-Cured		Burley		Turkish	
	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.	Acres under crop	Yield lbs.
Lower River ...	—	—	—	—	—	—	—	—	—	—	—	—
Cholo	66	36,252	66	36,252	—	—	—	—	—	—	—	—
Mlanje ...	—	—	—	—	—	—	—	—	—	—	—	—
Blantyre ...	893	334,282	808	312,749	85	21,553	—	—	—	—	—	—
Zomba ...	2,252	866,600	2,127	825,635	—	—	25	8,065	100	32,900	—	—
Fort Johnston ...	—	—	—	—	—	—	—	—	—	—	—	—
Ncheu ...	345	101,481	—	—	200	59,333	145	42,148	—	—	—	—
Dedza ...	537	312,272	405	252,836	2	15,136	130	44,300	—	—	—	—
Lilongwe ...	6,855	3,878,642	2,238	1,549,404	44	13,410	3,015	1,699,740	1,558	616,088	—	—
Dowa	3,231	1,077,607	1,193	507,600	—	—	328	116,300	1,710	453,707	—	—
Kota Kota ...	—	—	—	—	—	—	—	—	—	—	—	—
Mzimba ...	—	—	—	—	—	—	—	—	—	—	—	—
Chinteche ...	—	—	—	—	—	—	—	—	—	—	—	—
Karonga ...	—	—	—	—	—	—	—	—	—	—	—	—
Total ...	14,179	6,607,136	6,837	3,484,476	331	109,412	3,643	1,910,553	3,368	1,102,695	—	—
1946 ...	10,427	5,669,253	5,624	3,687,397	187	72,986	1,710	1,101,336	2,906	807,534	—	—

LIVESTOCK OWNED BY EUROPEANS AT 31st DECEMBER, 1947

District	Bulls	Oxen	Cows and Heifers	Calves	Horses	Mules	Donkeys	Sheep	Goats
Lower River	20	189	593	173	—	—	2	258	122
Cholo	39	533	1,011	450	9	—	3	223	—
Mlanje	3	80	123	19	—	—	2	7	13
Blantyre	49	279	914	313	—	—	49	18	30
Zomba	28	351	940	354	6	10	—	137	34
Fort Johnston	10	1	49	26	—	—	—	59	230
Ncheu	5	28	67	10	—	—	2	36	53
Dedza	7	51	146	30	—	—	—	26	3
Lilongwe	17	248	493	119	4	—	11	202	—
Dowa	—	17	10	5	—	—	1	10	7
Kota Kota	—	14	23	14	—	—	1	12	—
Mzimba	2	18	3	1	—	—	—	28	—
Chinteche	—	—	2	—	—	—	—	—	—
Karonga	3	32	40	17	—	—	—	20	—
Total	183	1,841	4,414	1,531	19	10	71	1,036	492
1946	288	3,081	7,111	2,449	43	1	58	1,158	766

District	Amount in Short Tons							
	Maize	Seed Cotton	Rice (Paddy)	Wheat	English Potatoes	Ground nuts	Tobacco	Beans
Port Herald	—	2,538	—	—	—	25	—	84
Chikwawa	—	2,602	69	—	—	—	—	—
Cholo	385	4	2	5	—	50	—	164
Mlanje	2,226	—	386	6	—	208	775	579
Blantyre	83	270	57	190	—	267	32	76
Chiradzulu	—	—	—	—	—	—	196	36
Zomba	26	—	46	—	—	370	228	—
Fort Johnston ...	206	54	—	—	—	370	258	—
Ncheu	153	—	—	131	61	108	348	101
Dedza	1,748	—	—	—	70	96	516	103
Lilongwe	3,200	10	10	—	—	252	3,672	10
Dowa	76	—	—	—	—	97	1,702	133
Kota Kota	23	486	486	—	—	6	904	63
Mzimba	243	—	—	30	—	12	—	40
Chinteche	—	—	—	—	—	—	—	—
Karonga	15	946	946	—	—	—	—	21
Total ...	8,384	6,910	1,996	362	131	1,861	8,631	1,410

Note :—Maize is the staple foodstuff in most districts ; groundnuts, rice, wheat, beans and various other crops are also grown by natives for local consumption, but it is impossible to make an accurate estimate of the quantities of any of these crops. The figures for maize, rice, wheat, and groundnuts are amounts actually sold in districts, in produce markets and to Government agents.

The above tobacco and cotton figures represent the quantities purchased in each district and do not accurately reflect the production by districts, as many natives grow their tobacco and cotton in one district and sell in another